

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/011291 A1

(51) International Patent Classification⁷: **H04N 13/00**,
G02F 1/1333, 1/1335, 1/1334

(21) International Application Number:
PCT/IB2004/002400

(22) International Filing Date: 22 July 2004 (22.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0317714.4 29 July 2003 (29.07.2003) GB

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN BERKEL**,
Cornelis [NL/GB]; c/o Philips Intellectual Property &
Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA
(GB). **KNAPP, Alan, G.** [GB/GB]; c/o Philips Intellectual

Property & Standards, Cross Oak Lane, Redhill, Surrey
RH1 5HA (GB). **CORNELISSEN, Hugo, J.** [NL/NL];
c/o Philips Intellectual Property & Standards, Cross Oak
Lane, Redhill, Surrey RH1 5HA (GB).

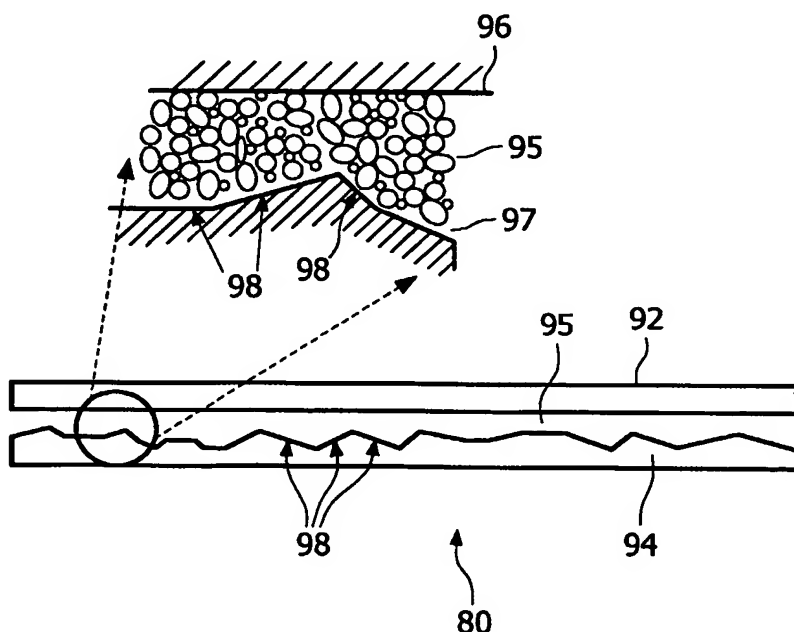
(74) Agent: **WILLIAMSON, Paul, L.**; c/o Philips Intellectual
Property & Standards, Cross Oak Lane, Redhill, Surrey
RH1 5HA (GB).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: AUTOSTEREOSCOPIC DISPLAY APPARATUS



(57) Abstract: An autostereoscopic display device (1), comprising a display panel (10), a lenticular sheet (15) and an electrically controllable diffuser (80). The electrically controllable diffuser (80) comprises an optical medium (94), e.g. polyethyleneterephthalate (PET), with a structured surface (98) against an electro-optic medium (95), e.g. a small droplet polymer dispersed liquid crystal (PDLC) layer. The electro-optic material (95) refractive index is varied with an applied electric field (or zero field) and is switchable between at least (i) a value (n2) substantially matching that of the optical medium (94), which provides a substantially non-diffusing mode, hence 3D operation of the display device, and (ii) a value (n1) different to that of the optical medium (94) hence causing refraction at the structured surface (98), the structured surface (98) providing different refraction angles

(?0) so as to provide an overall diffusing effect, hence 2D operation. The diffuser (80) may be provided as a stand-alone item.



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA,*

SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.